

DERWENT-ACC-NO: 1990-239666
DERWENT-WEEK: 199840
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TITLE: High temp. ceramic heating element for automobiles
- consists of
aluminium nitride substrate with doped areas to reduce heat
loss and printed
metallic conductor

INVENTOR: GRUENWALD, W; KRANZMANN, A ; MUEHLEDER, F

PATENT-ASSIGNEE: BOSCH GMBH ROBERT[BOSC]

PRIORITY-DATA: 1989DE-3901545 (January 20, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
DE 3901545 A	August 2, 1990	N/A
007	N/A	
JP 2792981 B2	September 3, 1998	N/A
006	H05B 003/16	
FR 2642116 A	July 27, 1990	N/A
000	N/A	
DE 3901545 C	April 18, 1991	N/A
000	N/A	
JP 03196484 A	August 27, 1991	N/A
000	N/A	
IT 1237957 B	June 19, 1993	N/A
000	F02N 000/00	

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
DE 3901545A	N/A	1989DE-3901545
January 20, 1989		
JP 2792981B2	N/A	1990JP-0008560
January 19, 1990		
JP 2792981B2	Previous Publ.	JP 3196484
N/A		
FR 2642116A	N/A	1990FR-0000684
January 22, 1990		
JP 03196484A	N/A	1990JP-0008560

January 19, 1990
IT 1237957B N/A
January 16, 1990

1990IT-0019075

INT-CL (IPC): B41M001/34; C04B035/58 ; C04B035/581 ;
C04B041/80 ;
F02N000/00 ; F02P019/00 ; F23Q007/00 ; H05B003/16

ABSTRACTED-PUB-NO: DE 3901545A
BASIC-ABSTRACT: The AlN substrate supports a heating conductor and contains regions of reduced thermal conductivity caused by doping with foreign ions, pref. Si, pref. in a concn. range from 50 ppm to 5%. The heaters are mfd. by first doping the AlN substrate where low conductivity is required, then printing the heating track pattern and finally sintering the construction in a shielding gas ambient.

Substrate doping can be carried out by printing a paste containing the foreign ions or depositing them by evaporation in the appropriate areas and heating the substrates to cause diffusion, pref. 12-36 hrs in vacuum or shielding gas at 800-1400 deg.C. Also claimed is the addition of dopant, pref. Si, to the heating element paste. The AlN substrates can be , wafers or rods.

USE/ADVANTAGE - The doping of AlN allows retention of the superior properties of AlN such as good adhesion of the heater material, good thermal shock performance and hardness while reducing the thermal conductivity.

ABSTRACTED-PUB-NO: DE 3901545C
EQUIVALENT-ABSTRACTS: Electrical high temp. heating element comprises an Al nitride substrate (I), on which is applied a thick layer heat conductor and a heat-conducting housing which partly surrounds (I). The improvement is that the part of (I) which is in the housing is doped with 0.35%

to 5% of foreign
ions, which reduce the thermal conductivity of the Al
nitride. Pref. O and/or
B and/or Si ions are used as doping materials. ADVANTAGE -
The heat
conduction, from the heater area in the edge zones, esp.
towards the contacting
(mounting) is predominantly inhibited.

(7pp)

CHOSEN-DRAWING: Dwg.1/3

TITLE-TERMS:

HIGH TEMPERATURE CERAMIC HEAT ELEMENT AUTOMOTIVE CONSIST
ALUMINIUM NITRIDE
SUBSTRATE DOPE AREA REDUCE HEAT LOSS PRINT METALLIC
CONDUCTOR

DERWENT-CLASS: L03 P75 Q54 Q73 X22 X25

CPI-CODES: L02-J01A; L03-H04A;

EPI-CODES: X22-A02B; X22-A09; X25-B01B;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1990-103645

Non-CPI Secondary Accession Numbers: N1990-185941

No.	Publication No.	Title
1.	<u>03 - 267061(1991)</u>	CONTAINER FOR TREATMENT OF USED MEDICAL SYRINGE
2.	<u>03 - 009503(1991)</u>	EXCITING COIL USED IN A VACUUM
3.	<u>01 - 180261(1989)</u>	WATER-COOLED NOZZLE
4.	<u>01 - 180227(1989)</u>	AGITATING ELECTRIC MOTOR FOR HERMETIC VESSEL
5.	<u>62 - 265738(1987)</u>	MOUNT FOR MEASURING WAFER WITHOUT DEWING OR ICING EVEN IN LOW TEMPERATURE RANGE

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TITLE: Ceramic substrate for semiconductor or production inspection apparatus
consists of conductor layer on inside or surface of nitride ceramic substrate
containing specified compositions of oxygen and silica

INVENTOR: NIWA, T

PATENT-ASSIGNEE: IBIDEN CO LTD[IBIG], NIWA T[NIWA]

PRIORITY-DATA: 2000JP-0017857 (January 21, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES		
US 6475606 B2	November 5, 2002	N/A
000	B32B 003/00	
JP 2001206772	July 31, 2001	N/A
012	C04B 035/581	
A	November 12, 2001	N/A
012	H05B 003/10	
JP 3228924 B2	November 22, 2001	N/A
000	B32B 018/00	
US 20010044015		
A1		

APPLICATION-DATA:

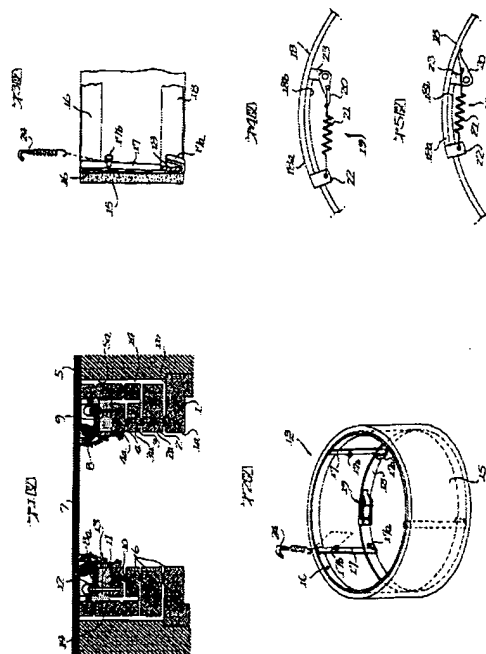
PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
US 6475606B2	N/A	2001US-0765361
January 22, 2001		
JP2001206772A	N/A	2000JP-0017857
January 21, 2000		
JP 3228924B2	N/A	2000JP-0017857
January 21, 2000		
JP 3228924B2	Previous Publ.	JP2001206772

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	Document ID	Kind Codes	Source	Issue Date	Pages	
1	US 6475606 B2		EPO	20021105	16	Ceran
2	JP 2001206772		EPO	20010731	12	Ceran
3	JP 3228924 B2		EPO	20011112	6	Ceran
4	US 20010044015		US-PGPUB	20011122	17	Ceran

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特開平 3-228924 (5)



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NOJ0001703

ABSTRACTED-PUB-NO: JP2001206772A

BASIC-ABSTRACT: NOVELTY - The ceramic substrate for semiconductor production-inspection apparatuses, has a conductor layer on the inside or surface of a ceramic substrate of thickness 1-25 μm and diameter 200 mm or more. The ceramic substrate consists of a nitride ceramic with 0.1-5 weight% of oxygen and 0.1-50 ppm of silica (Si).

USE - Semiconductor production apparatuses like ceramic heater, electrostatic chuck, wafer prober, etching apparatus, chemical vapor phase epitaxy apparatus etc.

ADVANTAGE - Reduction of volume resistivity is suppressed without reducing the temperature rise-temperature fall characteristics. Reduction of heat conductivity and reduction of Young's modulus at high temperature are prevented.

ABSTRACTED-PUB-NO: US20010044015A

EQUIVALENT-ABSTRACTS: NOVELTY - The ceramic substrate for semiconductor production-inspection apparatuses, has a conductor layer on the inside or surface of a ceramic substrate of thickness 1-25 μm and diameter 200 mm or more. The ceramic substrate consists of a nitride ceramic with 0.1-5 weight% of oxygen and 0.1-50 ppm of silica (Si).

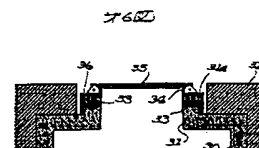
USE - Semiconductor production apparatuses like ceramic

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	Document ID	Kind Codes	Source	Issue Date	Pages	
1	US 6475606 B2		EPO	20021105	16	Ceran
2	JP 2001206772		EPO	20010731	12	Ceran
3	JP 3228924 B2		EPO	20011112	6	Ceran
4	US 20010044015		US-PGPUB:20011122	17		Ceran

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特開平 3-228924(5)

Fig. 1

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1	US 6475606 B2		EPO	20021105	16	Ceran
2	JP 2001206772		EPO	20010731	12	Ceran
3	JP 3228924 B2		EPO	20011112	16	Ceran
4	US 20010044015		US-PGPUB	20011122	17	Ceran

DERWENT-ACC-NO: 2002-260768
DERWENT-WEEK: 200235
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TITLE: Ceramic substrate, for aluminum nitride sintered compact, has conductor layer on its inner side or on its surface, and consists of nitride ceramic containing boron

INVENTOR: NIWA, T

PATENT-ASSIGNEE: IBIDEN CO LTD[IBIG], NIWA T[NIWA]

PRIORITY-DATA: 2000JP-0009256 (January 18, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
JP 2001199769	July 24, 2001	N/A
012 C04B 035/581		
A	May 9, 2002	N/A
000 B32B 015/04		
US 20020055021	November 12, 2001	N/A
012 H05B 003/10		
A1		
JP 3228923 B2		

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
JP2001199769A	N/A	2000JP-0009256
January 18, 2000		
US20020055021A	Cont of	2000US-0524010
March 13, 2000		

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	Document ID	Kind Codes	Source	Issue Date	Pages	
8	NN84081426		IBM TDB	19840801	1	Dev:
9	JP 2002016072		DERWENT	20020118	5	Cer:
10	JP 2001223249		DERWENT	20010817	9	Waf:
11	JP 2001206772		DERWENT	20021105	16	Cer:
12	JP 2001203245		DERWENT	20010727	15	Waf:
13	JP 2001199769		DERWENT	20010724	20	Cer:
14	JP 2001199768		DERWENT	20010724		Cer:

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(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2002/0055021 A1
(43) Pub. Date: May 9, 2002

(54) CERAMIC SUBSTRATE AND SINTERED ALUMINUM NITRIDE

(30) Foreign Application Priority Data
Jan. 18, 2000 (JP) 2000-009256

(75) Inventor: Taken Niwa, Tetsuaki (JP)

Publication Classification

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Washington, DC 20036-3425 (US)

(51) Int. Cl. 7 B32B 15/04
(51) U.S. Cl. 428/498, 428/469, 428/597

(57) ABSTRACT

The present invention provides a sintered aluminum nitride body and a ceramic substrate, which show a volume resistivity of not less than 10¹² Ω·cm even at an elevated temperature of as high as 500° C.

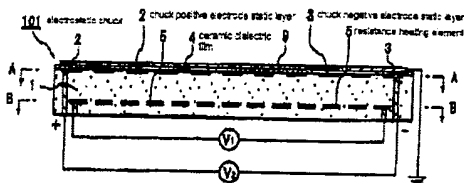
The present invention relates to a ceramic substrate comprising a conductive layer disposed internally or on the surface thereof, wherein said ceramic substrate comprises a nitride ceramic and boron is contained in said nitride ceramic, and to a sintered aluminum nitride body containing boron.

(21) Appl. No.: 09/946,463

(22) Filed: Sep. 6, 2001

Related U.S. Application Data

(63) Continuation of application No. 09/524,010, filed on Mar. 13, 2000.



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PAGES MAIN-IPC
 KR 2001001008 January 5, 2001 N/A
 001 C23C 016/52
 A

APPLICATION-DATA:
 PUB-NO APPL-DESCRIPTOR APPL-NO
 APPL-DATE
 KR2001001008A N/A 1999KR-0019959
 June 1, 1999

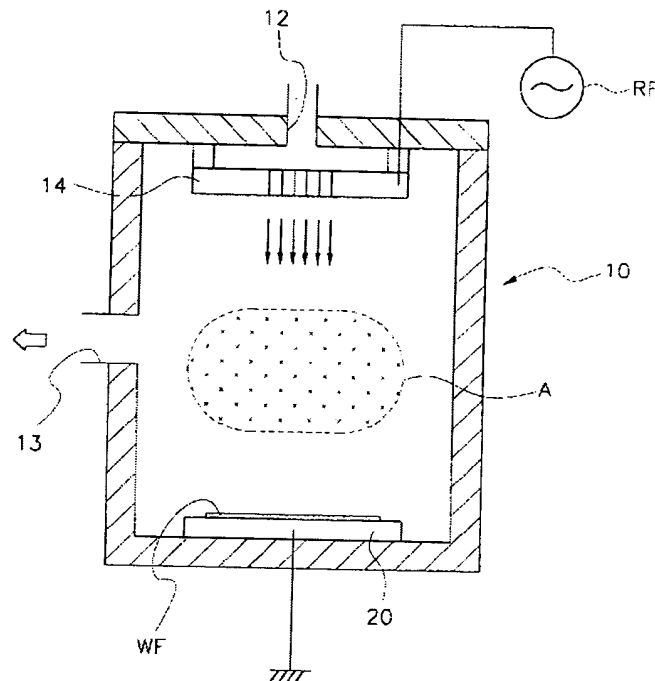
INT-CL (IPC): C23C016/52

ABSTRACTED-PUB-NO: KR2001001008A
 BASIC-ABSTRACT: NOVELTY - Provided is an electrode for preventing arc generation between susceptor and backside of wafer in a chemical vapor deposition (CVD) process, by means of using susceptor made of ceramic material or alumina nitride as one of ceramic material.

DETAILED DESCRIPTION - The susceptor is manufactured by insulating susceptor made of ceramic or alumina nitride materials from high frequency plasma produced in CVD process and inserting Mo or other conductor therein. An earth wire that is led from the conductor is grounded to a chamber (10), thereby insulating off gas plasma generated from CVD process.

CHOSEN-DRAWING: Dwg.1/10

TITLE-TERMS:
 LOWER ELECTRODE ARC PREVENT CHEMICAL DEPOSIT INSTALLATION
 LOCATE CERAMIC
 SUSCEPTIBILITY BACKSIDE WAFER



Document ID	Kind Codes	Source	Issue Date	Pages	
11 JP 2001206772		DERWENT	20021105	16	Cer
12 JP 2001203245		DERWENT	20010727	15	Waf
13 JP 2001199769		DERWENT	20010724	20	Cer
14 JP 2001199768		DERWENT	20010724	13	Cer
15 JP 2001148405		DERWENT	20010529	9	Waf
KR 2001001008		DERWENT	20010105	1	Low
17 DE 3901545 A		DERWENT	19900802	8	Hig

CHG DATE=19990617 STATUS=O> In CVD processes susceptors can be made of a thermally conductive ceramic such as aluminum nitride which has superior durability with respect to fluorine plasma. Such aluminum nitride susceptors (39) can include an embedded heater element (43) and/or embedded ground or RF electrodes (41) which as a result of their embedment are protected from the deleterious effects of the processing chamber environment. The conductors (87; 89, 91; 93) leading to these elements are protected from exposure to the process chamber environment by passing through a cylindrical member (25) filled with inert gas supporting the wafer support plate (39) of said susceptor. Alternatively, the conductors leading to these elements can be run through passages in a hermetically sealed stem (120) supporting the susceptor wafer support plate (100). The stem passes through the wall of the processing chamber so that connections to the susceptor wafer support plate can be made outside the processing chamber. Such a stem supporting the susceptor support plate can also provide passages (144, 146) for passing vacuum and purge gas to the back of the wafer support plate. Vacuum and purge gas can then be distributed through passages (150, 151) in the wafer support plate as appropriate to its top surface for a vacuum chuck and perimeter purge gas flow.

<IMAGE> <IMAGE>

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	Document ID	Kind Codes	Source	Issue Date	Pages	
1	JP 2001223249		JPO	20010817	9	WAFI
2	JP 2001144150		JPO	20010525	9	WAFI
3	JP 10162613 A		JPO	19980619	8	LIGI
4	JP 09237826 A		JPO	19970909	8	ELEX
5	JP 01179353 A		JPO	19890717	4	MANI
6	EP 628644 A2	A2, A3	EPO	19941214	24	Imp
7	NB8908403		IBM TDB	19890801		Sinc

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EP 0 628 644 A2

